Daring Linemen Who Fix Battle Telephones

Unsung Heroes, Experts in Civil Life, Undergo Greatest of Risks to Keep Up Communications

America Leads in This Specialty With Its Best Wire Men in Signal Corps by the Thousand

During the engagement the Germans concentrated their artillery fire on the American telephone and telegraph wires, which were cut many times., Couriers were forced to pass through two or three barrages to maintain communication. In the meantime the men of the Signal Corps, many of them smoking cigarettes in face of a heavy bombardment, restored the wires almost as fast as the enemy shells disrupted them.—*From an official account of the work of American troops in the battle of Seicheprey.*

THE two great means of communication on the modern battlefield, the means by which general headquarters keeps in touch with every sector of the line and by which the perfect coordination of all branches of the service is possible are the airplane and electricity.

The romantic appeal of the aviation service, the stirring stories of high adventure that have come out of the war have made the work of the birdmen, the superseders of cavalry as the eyes of the commander, familiar to the people at home. On the ground charging infantrymen and roaring cannon capture the imagination. But the heroic labors of men who keep open the telegraph and telephone lines which make cooperation of infantry and artillery possible are almost unknown outside the service, save, for instance, when one reads of a medal bestowed on a line repairman for magnificent disregard of danger. For their losses and their honors are alike great.

Go Over the Top Smoking Pipes.

They go over the top with the troops, smoking their pipes, coolly stringing lines behind the advancing first line so that the gun crews may be kept informed of the advance or told to concentrate their fire on a particularly obnoxious machine gun. They clamber out of dugouts into the slush and the freezing wind of a winter night to feel their way along a broken wire, sometimes over the shell pitted open ground behind the trenches until they find the break, then sitting in ice water under fire they repair it as carefully and skilfully as if they were at work in the shop at home. It often takes three or four men to repair one of these breaks; the first men sent out may never come back.

Repaired at all costs the wire must be, and danger does not excuse a slipshod bit of work. For the signal system of the army is what the nervous system is to the human body.

Without it the modern army covering 100 miles of front cannot see, feel or move. The army commander wishing to move a portion of his line fifty miles away or to change the rapidity of his artillery fire or to receive information of enemy movements is as helpless without the slender threads of copper as he would be if he wished to move his right arm and found the nerves paralyzed.

"There are still people of intelligence who think that the transmission of military thought is summed up in the use of the notebook, the orderly and his horse," writes Brig.-Gen. George P. Scriven. "But these are passing, and the trained soldier and the educated volunteer understand the vital importance of information.

General Would Be Blind and Deaf.

"Hence the necessity for a signal corps or its equivalent, for without its aid modern armies can no more be controlled than can great railway systems; the commander in the field remains blind and deaf to the events occurring round him, incapable of maintaining touch with conditions and out of reach of his superiors or those under his authority upon whom he depends for the execution of his plans. The brain lacks the power to control because the nerves are lacking.

"Time is the main factor in war; to arrive first with the greatest number of men and with the clearest understanding of the situation is to succeed. The last and often the first of these conditions depends upon the lines of information of the army."

And these lines in turn depend upon the obscure but daring work of the repairman, the grimy, mucky, hard fisted mechanic who crawls on his belly through shell fire calculated to appal the stoutest heart and connects the break between the commander and the point he wishes to reach.

No easy job for the lineman near the front.

Somehow the lines are kept open all the time or are broken for only short intervals, and the constant tending of them has made possible in France a system of wire communication that is a marvel of efficiency. Indeed so perfect is it that London and Paris are in direct connection with general headquarters on the British front, which in turn is in touch with every division and brigade staff on the line. A wire could be put straight through so that Lloyd George if he wished could hear the bursting of high explosives and shrapnel on the Amiens front.

An American correspondent once asked a General what the conditions were on the firing line forty miles away. The General took up a telephone receiver, asked for a station and the boom of artillery and rat-a-tat of rifle fire could be plainly heart; at a second station only the infantry fire was heard and still further on was silence, so that in a few minutes this General was able to tell just what the firing conditions were on three widely separated portions of the front.

This tremendous use of the telephone and telegraph in warfare is partly the result of the impetus arising from the American application of electrical communication on a large scale in the Sponish war. The Signal Corps as it now exists is a comparatively recent evolution.

Army Surgeon Had the Idea.

In the American Army the idea first arose in the mind of a young army surgeon, Albert James Myer. The office of signal officer of the army was created in June, 1860, the first of its kind, and Myer was appointed. He was at once sent with an expedition against Navajo Indians in New Mexico, and his crude apparatus at once demonstrated its worth.

When the civil war began he was ordered East and opened a school for signallers, and in that was the definite beginning of the present Signal Corps. Wires were carried on horse or mule back then, the instruments were imperfect and telegraphic communication was a rare and precious thing. The service took on tremendous importance in the Spanish war and followed the troops through Cuba and the Philippines, and in China was the only means of communication for a week between Pekin and the rest of the world.

But the tasks that confronted our signal men in these wars were play compared to the work that is being done every day on the western front. Our signal men there have an area to cover about the size of Pennsylvania and they have gone at it with a vigor and efficiency that spell volumes for the superiority of Americans in this particular line of work.

The hardy linemen who have strung lines and repaired breaks on the Western plains or battled with great floods and storms in the Rocky Mountains have taken to this new work with a zest which is inspiring. On the foundation of the French system they are building a signal system that will be a model of its kind.

Up to within four miles of the front construction is not different from what it is here at home. The wires are strung on poles and most of the poles have been planted by the French. But when one gets inside the shell torn section that stretches at least four miles from the front wires have to be protected by being buried from six to eight feet deep, so that only a direct hit by a large shell will disturb them.

Wires Duplicated Near Front.

Within half a mile of the front not even this protection is sufficient, as the shells churn and rechurn the ground. Therefore all wires in this zone are duplicated and are strung along both sides of the trenches. Sometimes a trench wall is covered with wires.

"There are only nine here at present," a signal officer said to a correspondent once, "but this is a new trench. Wait till the gunners open up a few observation posts—the place will look like a hen run then."

Back of the front these hundreds of lines are joined into main lines or cables which hold from twenty to fifty circuits. When we have 500,000 men in France we will need probably 30,000 miles of circuit and 12,500 men will be necessary to keep it open and in repair.

When the Signal Corps began to move to France calls were at once sent out for more skilled construction men, linemen, engineers and other experts in all that goes to make up a successful telephone system at the front. Hardy construction and repairmen of the American Telephone and Telegraph Company, men who have worked on the transcontinental line, men fitted to cope with the most difficult weather conditions volunteered in large numbers. So far more than 7,500 employees of the Bell system are in the Government service either here or abroad, most of them in their own line of special activity, and among them are some of the best known telephone men in the country.

First of these is John J. Carty, chief engineer of the American Telephone and Telegraph Company, the foremost telephone engineer in the world and the man who built the transcontinental telephone line between New York and San Francisco. He is a Colonel in the Regular Army and serves as consulting engineer in the Signal Corps.

Another telephone engineer of reputation is Frank B. Jewett, formerly chief engineer of the Western Electric Company and now a Lieutenant-Colonel in the Signal Reserve Corps, who is doing special development and research work.

But however valuable the services of these men are to their country the interest of the layman follows the unnamed men at the front who day after day and night after night under heavy shell and machine gun fire are making it possible that the work of their more distinguished superiors does not go for naught.

In the battalion headquarters signal office, where the hundreds of wires from the trenches and observation posts centre and where the receivers hum with the constant tremors of a world under fire, plain Bill Smith lounges in a corner rolling a cigarette and occupied in his own particular thoughts. It is a dugout, this headquarters, and the air is vile, but Bill got used to that long ago.

"The wire to A Battery is down," Smith's superior officer says, turning to him.

"All right, sir," is the answer. And Bill climbs out of the dugout, repair kit over his arm and tin hat on his head.

In the trench he finds the wire that is broken, and begins to follow it along. It is hot work in the trench, shells are dropping thickly, but Smith doesn't mind—much. He follows the wire down a communication trench and then after a long time out into the open, where he has to crawl along looking for the hole that will mark the place where the line has been broken.

Repaired Despite Many Deaths.

He gets nearly there when a shell lands near him and Bill Smith, his face toward the break, goes west. After a time, back in the dugout, another repairman is sent out and perhaps he is luckier than Bill and finds the break.

Then he has to sit down in the shell crater, the smash of bursting shells so close that sometimes he is half buried in dirt, calmly making the connection that will enable the observation officer up front to get in touch with his battery again. If he gets back to the dugout he will be sent out again and yet again if the bombardment is heavy, and often for days and nights at a time these men are under fire, snatching a nap now and then in the dugout between breaks. But they keep the lines open.

In an attack the signal men go over the top with the infantry, generally with the second wave, in charge of the observing officer. They make for a point where they can establish an observation post, and as they pass on and through the enemy's barrage they unroll their line and one of them carries a field telephone, through which they somehow manage in the din of battle, to make themselves heard.

That telephone is like a battle flag, and many a man goes down with it, only to have it picked up and carried forward by another of these non-combatant troops. Their business is only to serve, not to fight, and they do it with a cool daring which is not surpassed in any branch of the service.

Moved With the Advance.

When the battle moves forward fast and the telephone and telegraph wires have to be moved at top speed to keep up with the advance the importance of the signal service is demonstrated in a way as impressive as the onward rush of light artillery going into action.

When a division is ordered to move to another position with it go two cable wagons, carrying cable which is attached at one end to a permanent line. They have the right of way over troops and supplies, and at a rapid trot dash through the roads, the men on the wagons paying out the cable. Back of the wagons ride men on horseback who with hooked sticks toss the cable into ditches and behind hedges out of the way of troops and transport wagons, while further back other horsemen tie the line and make it secure.

They are in the forefront of every advance and in the retreat are sometimes the last to leave the front line, where they stick to the end of their wires under terrific shell fire until ordered to rejoin their commands if they can get through alive.

"An experience of this kind happened to me a short time ago in a lonely chateau of the Ypres-Menin road," an English officer wrote home. "The chateau was

(Continued on following page.)